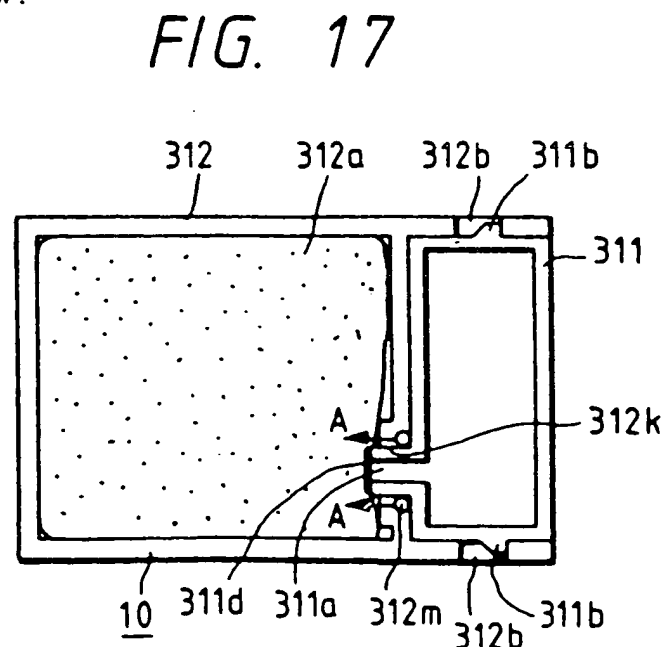


It is submitted that no new matter has been added and no new issues have been raised by the present Amendment.

The Office Action rejected claims 1, 5, 6, and 9-11 under 35 U.S.C. §103 over U.S. Patent No. 5,245,361 to Kashimura et al. in view of U.S. Patent No. 4,931,811 to Cowger et al., rejected claims 3 and 4 under 35 U.S.C. §103 over Kashimura in view of Cowger and further in view of U.S. Patent No. 5,138,342 to Kurata et al., rejected claims 7 and 8 under 35 U.S.C. §103 over Kashimura in view of Cowger and further in view of U.S. Patent No. 3,708,798 to Hildenbrand et al., and rejected claim 12 under 35 U.S.C. §103 over Kashimura in view of Cowger and further in view of Hildenbrand.

Applicants submit that claims 1, 5, 6 and 9-11 as amended define patentable subject matter over Kashimura and Cowger either alone or in combination.

Figure 17 of the Kashimura patent appears to show a recording head element 311 connected to and integral with an ink tank 312. Figure 17 is reproduced below:



The recording head element 311 has projections 311b with tapered surfaces that engage openings 312b in wall portions of the ink tank 312. According to the patent, the head element 311 is urged into the ink tank 312 in the direction shown by the arrow A in figure 17. It appears that as the head element 311 is urged into the ink tank 312, the projections 311b on the head element 311 engage the corresponding wall portions of the ink tank 312 so that the tapered surface of the projections expand the wall portions outwardly until the projections enter the openings 312b in the wall portions of the tank 312. When the projections 311b and the openings 312b reach a position where they are completely opposed to each other, the wall portion of the tank is restored to its original shape through the spring characteristics of the wall. As a result, it is believed that the projections 311b are permanently fitted into the openings 312b to obtain the integral connection between the head element 311 and the ink tank 312, as shown in figure 17.

It also appears that at the same time the projections engage the wall portions of the tank, a communication pipe 311a penetrates into the feeding inlet 312k of the ink tank 312. The communication pipe 311a is introduced into the ink tank 312 and an introducing inlet at the tip end of the pipe 311a is in pressure contact with an absorber 312a impregnated with ink to apparently provide ink communication between the tank and the head element. An O-ring 312m is apparently used as a sealant material to ensure ink sealing at a feeding inlet 312k.

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The specification of the Kashimura patent further describes the interconnection between projection 311b and opening 312b at column 18, lines 19-43 as follows:

According to the constitution as described above, only by pushing the head element 311 relative to the ink tank 312 in the direction shown by the arrow head A in Fig. 17, connection of the both can be effective without requiring any step such as adhesion, etc. also, since the communication pipe 311a provided on the head element 311 side is permitted to penetrate into the ink tank 312 so that its tip end may pressure contact the ink absorber 312a, ink communication can be assured.

In the constitution as described above, the projection 311b is provided on the head element side, and also the opening 312b provided on the wall portion of the ink tank 312 so as to affect engagement between the projection 311b and the opening 312b by utilizing flexibility or elasticity of the wall portion in mounting....

Based upon the discussion of the connection between the projections 311b and the openings 312b, it is believed that the recording head element 311 is not detachably mounted to the ink tank 312. The interaction between projection 311b and opening 312b is for a fixed installation using the projections and openings instead of an adhesive. See, Specification, col. 18, lines 19-23.

It appears that to be able to disconnect the recording head element 311 from the ink tank 312, sufficient manual force would have to be exerted upon the ink tank to expand the ink tank at the location where the projections engage the openings sufficient to allow the projections 311b to be withdrawn from the openings 312b.

Further, in the Summary of the Invention, Kashimura discusses different objects of the patent. One of the objects is to provide a tank integrated type recording head:

Another object of the present invention is to provide a tank integrated type recording head which can accurately position an ink tank integrated recording head as the ink jet recording head onto the carriage of an ink jet recording device, to provide a carriage which more surely hold said recording head and to provide an ink jet recording device having a recording head which can be accurately held under the desired state relative to within the main body of the device and the carriage.

Thus, it is believed that the purpose of the Kashimura patent involves an integral recording head and ink tank, and does not involve a recording head having a detachable ink tank.

Moreover, as discussed in the field of the invention at col. 1, lines 9-16, the invention discussed in the Kashimura patent relates to an ink jet recording apparatus to be employed for copying device, facsimile, word processor, video output printer, output printer of computer, etc., and particularly to a constitution for mounting a recording head equipped integrally with an ink tank for containing ink that is detachably connected onto a carriage. Thus, the recording head with the integral ink tank appears to be detachably connected to a carriage. It is believed, however, that there is no discussion in Kashimura regarding the detachment of the ink tank from the recording head.

In contrast, independent claim 1 of the subject application includes, inter alia, a recording head that includes "a carriage member constructed so as to be mounted upon an image recording apparatus for carrying thereon said recording head unit and said reservoir unit together in the state that said recording head unit and said reservoir unit are connected with each other detachably such that said reservoir unit connected to said recording head unit

is removable therefrom, said carriage member having a positioning part for determining a position of said nozzle of said recording head unit with respect to said carriage member." It is submitted that Kashimura does not disclose or suggest a recording head unit and a reservoir unit connected with each other detachably such that the reservoir unit connected to the recording head unit is removable therefrom, as recited in claim 1.

Furthermore, it is submitted that Cowger does not provide the subject deficient from Kashimura to render claims 1, 5, 6 and 9-11 obvious. Cowger appears to discuss an ink jet pen having a main unitary pen body housing 10 of a suitable plastic material and a print head support section 14. Cowger does not appear to disclose or suggest a recording head unit and a reservoir unit connected with each other detachably such that the reservoir unit connected to the recording head unit is removable therefrom, as recited in claim 1.

Accordingly, it is submitted that claim 1 defines patentable subject matter over Kashimura and Cowger either alone or in a proper combination. Claims 5, 6 and 9-11 depend from claim 1 and are also believed to define patentable subject matter over Kashimura and Cowger. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 3 and 4 were rejected under 35 U.S.C. §103 over Kashimura in view of Cowger and further in view of Kurata. It is submitted that claims 3 and 4 define patentable subject matter over

the Kashimura, Cowger and Kurata either alone or in a proper combination.

Claims 3 and 4 depend from claim 1 which, as described above, is believed to define patentable subject matter over Kashimura and Cowger. Moreover, it is believed that Kurata does not provide the subject matter deficient from Kashimura and Cowger to render claims 3 and 4 obvious. Kurata appears to discuss an ink jet recording apparatus having a mounting portion on which an ink jet cartridge is detachably mounted. According to the patent, the cartridge has a connector and a recording head portion for discharging ink to perform image recording. Kurata does not appear to disclose or suggest a recording head unit and a reservoir unit connected with each other detachably such that the reservoir unit connected to the recording head unit is removable therefrom, as recited in claim 1.

Accordingly, it is submitted that claim 1 defines patentable subject matter over Kashimura, Cowger and Kurata either alone or in a proper combination. Therefore, claims 3 and 4 which depend from claim 1 are also believed to define patentable subject matter over these patents. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 7 and 8 were rejected under 35 U.S.C. §103 over Kashimura in view of Cowger and further in view of Hildenbrand. It is submitted that claims 7 and 8 define patentable subject matter over the Kashimura, Cowger and Hildenbrand either alone or in a proper combination.

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Claims 7 and 8 depend from claim 1 which, as described above, is believed to define patentable subject matter over Kashimura and Cowger. Moreover, it is believed that Hildenbrand does not provide the subject matter deficient from Kashimura and Cowger to render claims 7 and 8 obvious. Hildenbrand appears to discuss a ink jet bag that supplies ink at constant pressure through a manifold containing an air bubble trap. Hildenbrand does not appear to disclose or suggest a recording head unit and a reservoir unit connected with each other detachably such that the reservoir unit connected to the recording head unit is removable therefrom, as recited in claim 1.

Accordingly, it is submitted that claim 1 defines patentable subject matter over Kashimura, Cowger and Hildenbrand either alone or in a proper combination. Therefore, claims 7 and 8 which depend from claim 1 are also believed to define patentable subject matter over these patents. Reconsideration and withdrawal of this rejection are respectfully requested.

Applicants respectfully traverse the rejection of Claim 12 under 35 U.S.C. §103 over Kashimura. As described above, the O-ring 312m discussed in the Kashimura patent is apparently used as a sealant material to ensure ink sealing at the feeding inlet 312k. That is, the O-ring 312m is believed to be a rubber seal ring that maintains an air tight connection between the tank unit 312 and the head unit 311 (see figure 17 reproduced above). It is submitted that the Kashimura patent does not disclose or suggest the step of "breaking said seal member such that an interior space of said ink

reservoir communicates with an exterior of said ink reservoir via said vent" as recited in claim 12.


Accordingly, it is submitted that claim 12 defines patentable subject matter over Kashimura. Reconsideration and withdrawal of this rejection are respectfully requested.

The Office is hereby authorized to charge any additional fees which may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Entry of this amendment and allowance of this application are respectfully requested.

Respectfully submitted,



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